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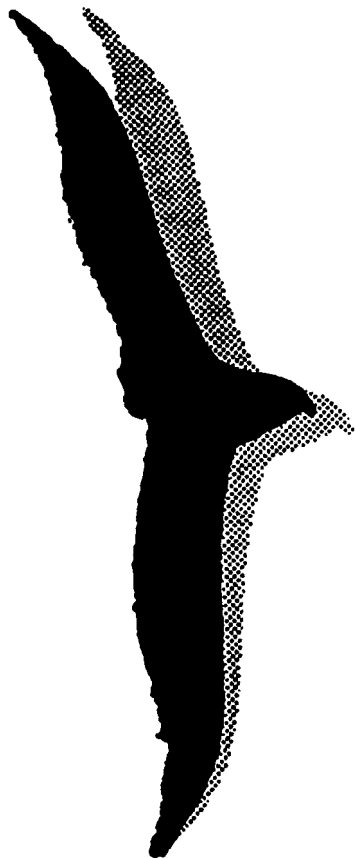
Social Security, Economic Growth and Poverty

Theoretical considerations and guidelines for institutional arrangements

Frank A.G. den Butter
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Social Security, Economic Growth and Poverty

Theoretical considerations and guidelines for institutional arrangements

Frank A.G. den Butter[‡] and Udo Kock[§]

January 2001

Abstract

This paper provides a review of the economic literature on social security systems and of practical experiences with building social security institutions. The focus is on the design of the institutions, and on the complicated relation between social security, economic welfare and economic growth at the macro-level. The aim of this review is to provide lessons for building social security schemes in developing countries, and more specifically in East Asian countries, which experience a relatively fast catch-up with the industrialized world.

Keywords: social security programs, social welfare, active labor market policies; equity and efficiency, labor participation

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1. Introduction

In modern industrialized countries social security arrangements play a major role in the design of the welfare state. In a general sense, social security purports to protect workers and their families from (extreme) income losses, and will therefore enhance economic welfare for risk averse individuals. Almost always aspects of solidarity are inherent in the philosophy of social security. Moreover some risks (e.g. cyclical unemployment, and more in general risks that stem from covariant shocks) cannot be insured by private companies. That is why governments are always involved in the provision of social security, and why it cannot be delegated (fully) to private agencies and insurance companies.

This paper provides a review of the economic literature on social security systems and of practical experiences with building social security institutions. The focus is on the design of the institutions, and on the complicated relation between social security, economic welfare and economic growth at the macro-level. Special reference is made to the European experience, because social security systems are much more elaborate and diverse in this continent than in the United States and Japan. The aim of this review is to provide lessons for building social security schemes in developing countries, and more specifically in East Asian countries, which experience a relatively fast catch-up with the industrialized world. The caveat is that our expertise is with social security in Europe so that we do not consider special forms of risk management which would be typically tailored to societal structures in developing countries (see e.g. World Bank, 2000, Chapter 8).

Three major aspects play a part in the discussions on social security: efficiency, equity and administrative feasibility (cf. Barr (1992)). In our evaluation of European social security systems we will focus on efficiency, but equity issues such as the reduction of inequality or the promotion of social integration are also heavily debated by academics and policy makers in Europe¹. We do not treat administrative feasibility because this is a rather technical issue with many legal and administrative implications. An important component of social security systems are pension schemes. We choose however not to discuss the pension system, as this topic deserves a separate treatment.

The next section describes the main characteristics of two concepts of social security that can be distinguished in Europe: the Beveridge concept and the **Bismarck** concept. Section 3 reviews some considerations from economic welfare theory with respect to the working and institutional set-up of social security arrangements. Section 4 turns to practice and addresses the experience with actual social security arrangements in Europe, and the problems encountered when designing and implementing these social security systems. Section 6 concludes with some relevant lessons for the design and implementation of formal social security schemes in developing countries.

¹See Barr (1992), section V, for a brief assessment of the distributional effects of social security in a number of OECD countries.

2. Beveridge versus Bismarck

In the 20th century two concepts of social security have emerged in Europe, the insurance concept and the redistribution concept (see Box 1 for a brief history of the development of social security in Europe). The concepts of social security in different countries and the content of particular social security schemes have changed over the years, due to changes in the political and economic context and because policy makers continue to tune the programs to economic and **labor** market conditions. Nevertheless, structural differences between countries remain and distinct characteristics of the two concepts are still visible.

The ‘insurance concept’ was introduced by Bismarck, the German leader who introduced this type of social protection for workers in the second half of the 19th century. During World War II the British reformer Lord Beveridge developed the ‘redistribution concept’ of social security. In Table 1 the most important characteristics are listed. The insurance-concept focuses to insure workers against the risk of income loss and hence it increases lifetime income smoothening. Most programs based on this concept are financed out of premiums. Mostly joint bodies of unions and employers administer these programs privately. Both contributions and benefits depend on earnings. These ‘redistribution’ programs do not focus on workers alone, but aim to cover al citizens. However, benefits are means-tested and only provide a minimum income guarantee. Its key focus is poverty relief. Benefits are financed out of general tax revenues and hence there is no link between contributions and benefits. Contrary to the Bismarck concept there are little eligibility rules. Usually public administration bodies administer the programs. In short, the differences between the two types of programs can be **characterized** as solidarity between (insured) workers in the Bismarck concept and solidarity between citizens in the redistribution concept.

The two stylized concepts of social security in Table 1 relate to social security programs that aim to protect workers from different kinds of social risk, including unemployment, disability, temporary illness, retirement and health.

Box 1 — A brief history of social security in Europe

In the evolution of European social security systems three stages can be distinguished. In the first stage charity was the main source of social protection for the poor. In the aftermath of the industrial revolution social insurance schemes were introduced to cover the social risk of old age, occupational disability and illness of workers in particular industries. Halfway the 20th century most schemes were expanded to cover unemployment risk and coverage was extended to include al workers. After World War II a third stage started where prevention of social risks became important and social protection was expanded to cover almost all aspects of occupational and private life. Influenced by Keynesian macroeconomics, social security policy became a tool for macro-economic policy. In the 1970’s many countries introduced or extended early-retirement schemes in response to rising unemployment. Western European countries differ with respect to the speed of this historic process depending on economic development, **industrialization** and changing social-conditions. But by the end of the 1960s all countries had developed a comprehensive system of social security.

Table 1 — Characteristics of social security concepts in Europe

	<i>Pure insurance – Bismarck</i>	<i>Pure redistribution – Beveridge</i>
Main goal	Guarantee social- and economic status	Guarantee income at subsistence level
Eligibility	Dependent on contribution	Independent of contribution
Expected benefits	Matches contribution (contribution income tested)	Means tested
Type of benefits	Depend on previous wage and contributions	Means tested, flat rate
Financing	Premiums	General tax revenues
Administration	Private	Public
Focus	Labor market	Citizen's rights
Examples	Germany	United Kingdom

In short, in the pure insurance concept of social security contributions equal the expected benefits, both depending on the probability that the contingency takes place. Under the pure redistribution concept eligibility depends on income and other means of living and there is no relation with past contributions.

Connolly and Munro (1999) distinguish a third concept of social security, namely the saving concept. Compulsory savings provide social protection for individuals, not only for retirement pensions, but also for contingencies such as unemployment, disability and health problems. Benefits equal the accumulated contributions and total benefits received depend on the rate of accumulation of his compulsory savings. The typical case is Singapore.

Social protection against the risks of income loss associated with formal employment comprises of in-kind- and cash benefits. Because we intend to discuss the **economic-** and especially **labor** market-related institutions of Western social security systems, we concentrate on cash **benefits**². Barr (1998) distinguished three types of cash-benefits:

I. Social insurance: compulsory insurance with benefits levels and duration based on past contributions and/or employment history, against a specified contingency, such as unemployment, retirement or disability. Contributions are mostly linked to wages and paid by employers and employees. The insurance element, or better the actuarial element, is that benefits are partly related to past contributions. There is no means test.

II. Social assistance benefits: means-tested benefits for specified contingencies. The benefits are mostly tax-financed, i.e. there are no premiums or other form of contributions. The benefits are meant to be a benefit of the last resort for workers

² See for an overview of pensions and in-kind benefits Barr (1998) chapter 9, 12, 13 and 14. Barr (1992) provides a clear and thorough review of the empirical and theoretical literature of the economics of health care.

without (sufficient) unemployment insurance, for households with no source of income or for the working poor. Usually the benefit duration is unlimited.

III. Universal benefits: tax-financed benefits awarded on the basis of specified contingencies without a contribution or means test, such as child benefits and the flat rate retirement pensions in some countries (e.g. Sweden and The Netherlands), the National Health Service in the United Kingdom and family support or child benefits in many other European countries.

In Table 2 we illustrate the distinction between the two types of social security benefits. On the basis of the description of the two systems given in Table 1, we expect that in countries with a social security system that is dominated by the insurance concept, a large proportion of the revenues are paid by employees and other insured persons. The state is likely to be the major source of revenue in countries where social security is dominated by the redistribution concept. We expect these countries to spend a relatively large portion of revenues on social assistance and family allowances and a relatively small portion on social insurance. In countries where social security is **characterized** by the insurance concept we expect a reverse pattern.

From Table 2 we conclude that social security in Germany and, to a lesser extent, The Netherlands is dominated by the insurance principle. Social security in England and to a lesser extent Sweden and Denmark is dominated by the redistribution principle.

Generally speaking, there is a trade off between the insurance- and the redistribution system: the former provides relatively high benefits for a limited group; the latter grants relatively low benefits for a large group. Overall spending, as a percentage of gross domestic product, does not differ much however.

In most European countries there is a two-layer system to protect workers against the consequences of unemployment. After an initial period of receiving unemployment insurance benefits unemployed workers are entitled to means-tested assistance benefits. In most countries there is a general social assistance scheme, but Germany, France and Spain have a special means-tested unemployment assistance program. The Netherlands abandoned the special means-tested unemployment assistance program in 1996, and introduced a general social assistance scheme. The difference between the social assistance scheme for unemployed workers and for persons without employment history usually relates to the type of means-testing, which is typically less tight for the unemployment assistance benefits.

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Table 2 — Characteristics of social security systems: sources of revenue and type of benefits

	Sources of revenue ^a			Spending by type of benefit ^d		
	Insured Persons	Employers	State ^b	Social insurance ^c	Social assistance	Family allowance
Germany						
1960	25.9	44.4	25.0	66.7	6.6	2.0
1970	28.9	42.3	25.1	70.8	4.7	2.6
1980	34.0	34.2	28.9	75.4	4.1	5.0
1985	36.3	34.7	26.4	78.3	4.9	3.3
1993	36.8	32.3	27.6	81.7	6.4	2.6
1995'	29.8	38.1	29.8			
Netherlands						
1960	40.9	40.3	12.2	64.4	4.8	13.0
1970	38.5	42.9	12.3	69.4	4.8	10.3
1980	33.2	33.3	24.6	73.7	6.2	7.5
1985	39.5	31.8	16.3	76.5	3.5	7.2
1990	43.0	17.7	24.4	77.4	2.7	5.1
1993	46.0	18.0	21.4	77.5	2.2	4.8
France						
1960	18.9	68.9	11.1			
1970	18.9	68.4	10.3			
1980	21.0	53.4	24.1	62.6	15.8	10.6
1985	23.0	50.3	23.7	65.7	13.2	11.2
1990'				71.9	4.6	11.9
Denmark						
1960						
1970	14.;	8.9	75.8	69.4	18.5	6.6
1980	1.8	5.9	90.2	68.3	24.2	3.0
1985	3.1	7.8	86.1	68.2	25.7	1.8
1990	4.6	5.1	87.8	62.6	28.6	3.3
1995'	10.8	9.5	73.7			
Sweden						
1960	20.5	11.0	66.9	71.3	12.2	10.7
1970	11.4	27.7	54.6	80.2	14.7	5.1
1980	1.0	45.9	45.3	77.9	16.8	5.2
1985	1.3	36.4	52.2	84.5	0.3	15.3
1991	1.7	39.7	49.4	84.2	0.6	12.9
1993	1.0	43.0	56.1	83.8	1.5	12.8

Table 2 (continued) — Characteristics of social security systems: sources of revenue and type of benefits

	Sources of revenue ^a			Spending by type of benefit ^d		
	Insured Persons	Employers	State ^b	Social insurance ^c	Social assistance	Family allowance
United Kingdom ^e						
1959-60	20.0	17.9	58.7	71.0	10.8	5.4
1969-70	19.9	24.9	53.0	70.5	15.0	5.4
1979-80	15.6	26.2	55.0	67.3	15.6	7.8
1984-85	18.3	23.5	55.5	58.8	24.5	7.0
1991-92	15.6	25.5	49.8	61.1	22.8	5.7
1993-94	14.0	22.8	54.7	57.8	26.2	5.6

Source: Website at www.ilo.org/public/english/protection/socsec, International Labor Office (1992), Barr (1992) and own calculations.

Notes:

^a Including social security related to: medical care, sickness benefits, unemployment insurance, retirement pensions, employment injury benefits, family benefits, maternity benefits, invalidity benefits, survivors' benefits. Total sources do not add up to hundred percent because revenues from capital income and other sources have been omitted.

^b Including special taxes allocated tot social security and participation of other public authorities.

^c Including public health services.

^d Total spending by type of benefit does not add up to hundred percent because spending on benefits for pubic employees and war victims has been omitted.

^e The reference period is April – March.

^f Change in the definition.

. indicates that no consistent or reliable data was available.

The three types of cash-benefits mentioned are theoretical constructs. All European systems of social security consist of a combination of these three types of cash benefits, but one type or the other may dominate in a country. In practice many programs combine elements of unemployment insurance and unemployment assistance. For example, the level of the Germany unemployment assistance benefit depends on previous earnings and the British unemployment insurance scheme provides a flat-rate benefit, although entitlement depends on contributions.

Germany comes closest to the pure insurance system. The unemployment insurance programs in other countries deviate in three ways (Schmidt and Reissert (1996b)):

1. In The Netherlands, Denmark and Sweden the government contributes from the general budget to the unemployment insurance fund.
2. In the United Kingdom the social-insurance system as a whole receives a **cross**-subsidy from the unemployment insurance fund.
3. In Denmark and Sweden contributions are flat rate although benefits are **income**-related.

The United Kingdom represents the opposite of the German system, and comes closest to a pure redistributive system.

It is important to note that one has to be very cautious in classifying countries into concepts as general as the 'insurance' and 'redistribution' concept. Nevertheless, the classification of social security systems given in this paragraph turns out to be remarkably stable over time. In fact, many countries have sharpened their respective profiles (Schmid and Reissert (1996b)). In recent years the social security system in

the United Kingdom moved even further away from the insurance principle. Since 1992 unemployment insurance contributions are related to past earnings, although the program pays a flat-rate benefit. In Germany, France and Spain the link between benefits and previous employment and contributions has been strengthened.

At present, the theoretical concepts of ‘pure redistribution’ and ‘pure insurance’ have evolved into a complex and highly diversified system of social security programs. In practice most Western European countries have components of both concepts, and all European countries have come to face to some extent the trade-offs and choices discussed in the next section

3. Theoretical considerations

Efficiency and Equity

Amongst academic economists there is no consensus on the question whether a comprehensive system of social security constitutes an impediment for economic performance or whether it, on the contrary, enhances economic activity (see e.g. Borstlap, 1996). An underlying question in this debate is whether the reduction in inequality, which results from redistribution in a system of social security, is harmful or beneficial to economic growth. The argument which stresses the negative impact of the redistribution effect of social security on economic activity is Okun’s well known argument on the trade-off between equity and efficiency. According to this argument social security expenditures are thrown in a leaky bucket because the welfare loss of those who pay the social security premiums is larger than the welfare gain of those who benefit from social security.

On the other hand is argued that social security provisions may enhance economic welfare. There is a parallel between this argument on the beneficial effects of social security and the findings of, among others, Persson and Tabellini (1994), who observed that on the basis of the results of the democratic correction mechanism inequality is harmful to economic growth. As the recent literature (see Aghion, Caroli and Garcia-Peñalosa, 1999) suggests that the relationship between inequality, poverty and economic growth is quite complicated and that no unequivocal conclusion can be drawn, we will not pursue this question further. We concentrate on the relationship between the redistribution effects of social security and economic welfare, where we implicitly assume that social security will alleviate poverty and enhance equality. According to those who argue that social security has a positive effect on welfare, Okun’s metaphor of the leaky bucket is incorrect because it assumes that we live in a perfect world with complete information and with well-functioning markets. However, the real world is not perfect and in our “second best world” the redistribution of social security may very well enhance economic welfare. In particular the so called *irrigation function* of social security is put forward as an alternative to the leaky bucket of Okun. According to this theory a positive ‘relationship between social security provisions and economic performance can exist because the lack of social security may be an impediment for the functioning of labor market dynamics. These labor market dynamics where, due to idiosyncratic shocks, old jobs are destroyed and new jobs are created, play an essential role in economic development. It would be harmful to economic activity when the process of structural change which brings about job creation and job destruction, was hindered by

impediments resulting from the **labor** market. In case workers can resort to the social security provisions, they will not be too reluctant to give up the old job when it has become unproductive. Instead they will be more eager to search for a new job with the expectation that the search process results in a good match between their own capabilities and the requirements for a new job, so that the match becomes as valuable and productive as possible.

At the macro level it implies that the processes of job destruction and job creation, and hence of structural change, can proceed in good pace. In the end this is beneficial to productivity and therefore to economic welfare. Temporary unemployment, or frictional unemployment, is inevitable in this process. It is a necessary condition for welfare increase, resulting from structural change initiated by technological progress and shifts in preferences. We note that this irrigation function of social security provides a further argument for setting up comprehensive social security systems in newly developing countries that, due to the technological catch-up with the industrialized world, witness a fast economic growth. Especially in these countries it is important that workers can spend time to search for good jobs and establish good matches. It would be a severe impediment to the functioning of the **labor** market when there were no good social security provisions and job seekers had to spend a lot of time to earn a living just at the subsistence level, e.g. by working in the informal sector.

How can social security enhance welfare?

The mechanisms according to which a comprehensive social security system may enhance economic welfare are illustrated in formal modeling exercises by Mortensen and Pissarides (1999) and by Marimon and Zilibotti (1999). The upshot of both articles is that the rather limited extent of social security provisions in the United States as compared to the extensive provisions in Europe resulted in less unemployment in the United States than in Europe, but that, on the other hand, the European social security systems are more beneficial to economic welfare. The equilibrium search theory of the **labor** market is at the core of the argumentations in both articles. The most important sources of the differences are the ***skill biased technology shocks***. These shocks imply that the spread and heterogeneity in the demand for capabilities and skills at the **labor** market becomes larger so that differences in education become more prominent in the search process (see e.g. Machin en Van Reenen, 1998, and Berman, Bound and Machin, 1998, for empirical investigations of the importance of these shocks). The effects of skill biased technology shocks are different in countries with an extensive social security system as compared to countries with limited social security. The focal point in the reasoning is again that unemployed in a country with extensive social security spend more time searching for a job which fully matches their skills than unemployed in countries with little social security. An abundant social security system makes both employers and employees more choosy in establishing a good match. This mechanism gains importance when the heterogeneity in the demand for skills increases and leads to longer unemployment spells when social security is good. This explains why unemployment is larger in Europe than in the United States. But the advantage of the European situation as compared to countries with poor social security is that quality of matches increases and that in successful matches workers' skills are exploited in a

better way so that productivity is higher. This is also favorable for job creation as the asset value of a successful match becomes larger.

The formal models in both articles differ in the sense that Mortensen and Pissarides consider a completely segmented **labor** market with two different levels of education, whereas Marimon and Zilibotti allow at the same **labor** market all possible matches between heterogeneous jobs and workers with different skills. Yet the mechanisms in both models and their effects on unemployment and welfare are not essentially different. Calibrated versions of the models with realistic parameter values appear to be very well capable in explaining the differences in actual **labor** market developments between the United States and Europe. Mortensen and Pissarides show that, if the United States would have had the same level of unemployment benefits and the same level of protection against dismissal as Europe, skill biased technology shocks would have had similar effects on unemployment and on wage differentiation as in Europe. According to the modeling exercises of Marimon and Zilibotti a good system of social security enhances unemployment duration but it also leads to a considerable increase in productivity because of better matches when skill biased technology shocks hit the economy. Moreover, the model of Marimon and Zilibotti shows that not only unemployed experience a welfare gain in a country with extensive social security, but that such social security also enhances the welfare of low paid workers. On the other hand, a good social security system is a disadvantage for those lucky workers who already earned a high salary due to a good match. It should be noted that both models do not reckon with risk averse behavior, which is another argument why a good system of social security enhances welfare. Yet an important disadvantage of both models is that they do not allow for job mobility so that these models assume that only unemployed and not employed workers search for new jobs.

Although both models relate to differences between social security systems in the industrialized world, the arguments why a good social security system may enhance productivity and welfare, will certainly also apply to developing countries with fast economic development and structural change.

Trade-offs in institutional arrangements

The traditional aims of social security are to protect people from the financial consequences of unemployment, disability, retirement and other social risks. Additionally the social security system aims to prevent these contingencies and if possible to restore the old situation, i.e. to reintegrate workers in the **labor** market. Proposals to reform or implement social security programs should be assessed according to these two main goals. For such assessment it is useful to consider a simple framework to assess policy proposals for social security, which consists of assessment criteria for coverage, entitlement rules (the 'gate keeper' function) and reintegration (c.f. Scientific Council for Government Policy (WRR), 2000 and Den Butter and Kock, 2000).

The first criterion relates to the coverage and scope of a particular social security program or reform proposal. The key question here is who is entitled to the benefit. In policy discussions this issue is often addressed as a *trade-off between general and targeted* policies. The advantage of targeted policies is that they directly address the social risk of a narrowly defined group. A disadvantage is that people, who a priori do

not belong to the target group, have an incentive to adjust their behavior to become entitled to the benefit. The Earned Income Tax Credit is an example of a targeted (tax) policy, aimed to increase **labor** supply of low wage workers. The disincentive involved in this policy is that the high marginal tax rates in the phase out range of the tax credit give workers disincentives to invest in human capital. Furthermore the relative prices of **labor** are distorted. General policies do not face these problems because their scope is much wider, which reduces the incentives to change behavior in order to become entitled to the benefit. General policies however, suffer from a large deadweight loss: a large number of recipients, which are formally entitled to the benefit, does in practice not need the benefit. A good example is the general tax credit introduced in the Dutch tax reform, which will become effective in 2001. The tax credit aims to increase **labor** supply and the outflow from unemployment. This policy measure does not generate **labor** market distortions, but given the government's budget constraint, the level of the tax credit and the impact on **labor** supply and unemployment outflow will only be limited.

Once the coverage and corresponding entitlement criteria of a social security program have been determined, one has to consider how these criteria are going to be enforced. Applications have to be evaluated and entitlement decisions have to be taken. This *gatekeeper-function* determines who will be granted a particular benefit and what the benefit level and duration will be. Generally speaking, the gatekeeper function is more important for targeted policies because these programs give people incentives to change their behavior and apply for a benefit, although their personal characteristics have not changed. The gatekeeper function always involves societal costs. A severe application of the rules determining who is entitled for the social security provision, and who is not, implies that only a small chance remains that somebody is admitted who is not entitled. This is analogous to the error of the second kind in statistical testing. On the other hand, the error of the first kind – the probability that somebody who is entitled is not admitted –, is rather large with severe gate keeping. The opposite holds for a generous application of admission rules. Now the probability of an error of the first kind is low but the probability of an error of the second kind is large. One can try to enhance the discriminatory power of the gatekeeper function by reducing the asymmetric information between the gatekeeper and the individual who seeks entitlement, but that will seriously enlarge the costs of gate keeping.

The first two criteria in asserting social security reform policies relate to the inflow in the program. Outflow or reintegration is evaluated with the third criteria. Social security programs for unemployed-, disabled- and ill workers should contribute to *rapid reintegration* in the **labor** market. This can be done in many ways, for example by integrating active **labor** market policies in the benefit program. Obviously the incentive structure of a particular benefit program is an important aspect in the outflow rate of the program.

Incentives

If properly designed, benefit programs minimize adverse **labor** supply effects. However, many social security programs in Europe cause severe incentive problems on the **labor** market. The magnitude and the precise form of these incentive problems depend on the institutional characteristics of a social security scheme. For

unemployment compensation programs (i.e. unemployment insurance and unemployment assistance) these characteristics are:

1. Benefit level;
2. Benefit duration;
3. Contributions (taxes or premiums);
4. Entitlement conditions (lay off, not voluntary quits, employment history);
5. Job search conditions;
6. Job acceptance conditions (some 'unsuitable' job offers may be rejected);
7. Means-test (including other household incomes?, including housing property?);
8. Household circumstances (children?)

The traditional negative incentive effect is that higher benefit levels or longer benefit duration tend to increase the reservation wage and lower the job acceptance probability of a worker and hence lower the outflow rate of unemployment. Because of high replacement rates (i.e. the ratio of the net benefit level to the average net wage) the price of unemployment is lower to the unemployed and they may be less willing the search for jobs or accept a job offered. Moreover, if consumption and leisure are complements, then an increase in the benefit level will increase the value of leisure and the worker will reduce his search intensity, which influences the outflow rate from unemployment **negatively**³.

High benefit levels cause a disincentive for workers to accept low paid jobs, because their net gain in income will be small. In many European countries this problem is increased due to means-tested additional benefits, which are sometimes in-kind. In many countries, such as Germany, the United Kingdom and The Netherlands, unemployed workers receiving unemployment assistance are exempted from local taxes and they are entitled to discounts for some education and health services. In some countries the rent allowance is linked to the unemployment assistance benefit. If these unemployed workers accept a job, they will loose most of these additional benefits and discounts. This creates the so called '*unemployment trap*', by which workers remain unemployed voluntarily because of the small net gain they can get accepting a job.

On the other hand, unemployed workers who are not entitled to unemployment insurance benefits will lower their reservation rate and raise their search intensity when unemployment benefits become more generous, to find employment and hence qualify for unemployment benefits. The magnitude of this *entitlement effect* of unemployment insurance depends on the precise form of the entitlement conditions.

The incentive effects of unemployment compensation relate to whether a country's social security system is mainly insurance-based or redistribution-based (cf. **Schmid** and Reissert, 1996b). Insurance-based social security systems, such as Germany, tend to exclude long-term unemployed from unemployment insurance. Because these unemployed workers usually receive a means-tested unemployment assistance benefit or family allowance, the unemployment trap applies in particular to them.

³ See Kami (1999) for an overview of the theoretical literature on optimal unemployment insurance.

The unemployment insurance benefit level is considerably higher than the unemployment assistance benefit level. The latter is mostly a flat-rate means-tested benefit, whereas the former usually depends on the previous wage of the worker. In countries such as Germany, The Netherlands and France, unemployed workers who reach the end of the maximum period of unemployment insurance benefits move to the stock of unemployment assistance beneficiaries, and face a sharp decline in benefit level.- They are induced to lower their reservation wage and increase their job search activities, which will raise the outflow rate from unemployment. Empirical studies found a large increase in the outflow rate of unemployed towards the exhaustion of the benefit period (Van den Berg, 1990).

The general conclusion from the empirical literature is that the duration of unemployment is slightly longer at higher replacement rates (Layard, Nickell and Jackman, 1991). For The Netherlands Van den Berg (1990), Kalb et al. (1991) and Muffels (1993) found duration-elasticities with respect to the benefit level or replacement ratio in the range 0.06 to 0.47, the lower value applying to high skilled workers and the higher value applying to low skilled workers after two years of unemployment. For the first two years of unemployment Van den Berg found an elasticity of 0.14 for low skilled workers. These results are illustrative for other European countries. One reason why most empirical studies indicate only a small effect of the unemployment insurance benefit level on unemployment duration is that occasionally counteracting policies have been introduced. For example, in the late 1960s and early 1970s unemployment compensation was extended in Sweden, while active labor market policies were introduced to combat rising unemployment. Björklund and Holmlund (1989) conjecture that this is a reason why they find only a limited impact of higher benefit levels and benefit duration on unemployment.

4. Practical experiences

Spiral of the wedge and the supply effect

Social security influences the development and pattern of labor force participation over time, the tax- and premium rates and the labor productivity (see Van Paridon, 2000). The interaction of these macro-economic variables could cause a negative spiral. High taxes and premiums, needed to support an abundant system of social security affect both labor supply and labor demand. High average and marginal tax and premium rates create a wedge between the gross and net wage of workers. This will induce a decline in labor force participation and the number of hours worked, especially for women earning a second family income. Low labor force participation in turn, provides a small base to finance the social security programs. In a downturn of the business cycle, a relatively large premium and tax raise will be needed which induces unions to demand higher wages. This reduces labor demand, deteriorating the premium and tax base even further. This mechanism, which is sometimes referred to as the ***social security trap***, is reinforced because high wage costs give employers an incentive to increase labor productivity through investments in labor-saving technology and innovations.

A major engine behind this mechanism of a negative spiral is that social security is not only determined by demand, but also partly by supply. Den Butter (1993)

investigates such a ‘supply effect’ by means of a cliometric model simulation over the period 1970-1990 in The Netherlands. This period witnessed a sharp rise in the number of persons who received (or made themselves receive) benefits, in spite of the fact that the system of social security, which was mainly built up in The Netherlands in the 1950s and 1960s, was not expanded with major new provisions in the 1970s and 1980s.

In order to illustrate how a negative spiral of the wedge can be set in motion we discuss the supply behavior in the model. The model describes a breakdown of the total working age population into three categories, namely the participants (active **workers**⁴), non-participants receiving a benefit, and finally non-participants who do not receive a benefit. The model assumes that the allocation of the working age population to the three categories is determined by **labor** supply behavior. Each individual of the working age population has the discrete choice to be in one of the three states:

- S₁: Active worker
- S₂: Recipient of benefits
- S₃: Non-participant without benefits

Each state is associated with a certain amount of utility which is partly a function of monetary rewards and monetary costs (including opportunity costs) and which partly relates to immaterial aspects of being in that state, such as social status.

The utility of being an active worker firstly depends, as in textbook **labor** supply models, on net earned wages, w_n . Secondly there are costs involved in finding and holding a job, which are dependent upon the ease with which jobs can be obtained and hence upon **labor** demand. Therefore two determinants of **labor** demand enter into the utility function, namely gross real **labor** cost per worker in the market sector, corrected for **labor** productivity, w_g' , and economic activity corrected for **labor** saving technical progress and contractual working hours, y_{Ld} ,

$$U(S_1) = f_1 (w_n, w_g', y_{Ld}, U_1)$$

Finally there is a (dis)utility U_1 connected with being an active worker, which on the one hand can be associated with foregone leisure time, but on the other hand also with opportunities for social contacts, for maintenance and upgrading of human capital (‘learning by doing’) or for future eligibility for social security (the entitlement effect mentioned before).

The utility of being a recipient of a benefit is assumed to be a function of the replacement ratio, rr , (the ratio of net benefits and net earned wages), the ease with which social security benefits can be obtained, SSC , and the (dis)utility of receiving a benefit, U_2 ,

$$U(S_2) = f_2 (rr, SSC, U_2)$$

⁴ In the international literature (gross) **labor** participation is usually defined as employment plus unemployment, but here we will stick to the terminology in The Netherlands which identifies (net) participation with active workers (total employment minus temporary illness).

The replacement ratio as an argument in this utility function is in accordance with **labor** supply models in the literature. The benefit level may also act as an argument in the utility function for the active workers representing the reservation wage. The second argument, the ease (or costs) of obtaining a benefit, relates to the main determinant of the supply effect. This argument represents the crucial feature of the model, namely that the number of people obtaining a social security benefit does not solely depend upon the underlying determinants of demand, but also upon supply.

A first aspect with regard to this argument (SSC) representing the supply effect is the moral hazard problem with social security. Lubbers (1990) mentions the erosion of the sense of responsibility when applying for social security. On the other hand, the supply effect comprises the fact that people will become aware of their legal right to demand social security in case they have become eligible. Therefore, part of the supply effect will involve that more and more people eligible for social security actually receive benefits. One could also speak of a kind of increased 'rent seeking', which is yet another aspect of the supply effect. Whereas the benefit level as an instrument of the government represents so-called *price policies* in social security, the various possibilities of the government to influence the supply of social security can be regarded as examples of *volume policies*. A decrease of the supply effect can be brought about by strengthening the standards of eligibility for social security or by a more severe gate keeping function. Another way to effectuate such decrease is to call for the responsibility of the people not to abuse social security, and to provide training and the opportunity to obtain working experience rather than just giving financial compensation (workfare instead of welfare).

The (dis)utility of receiving a benefit, U_2 , is taken as a separate argument in the utility function above, but of course this (dis)utility is strongly connected with the social climate.

Finally we have to consider the individual of the working age population who decides to be non-participant without benefit. As this is the residual state we have

$$U(S_3) = f_3(U_3)$$

with U_3 the (dis)utility of being in state S_3 . This (dis)utility depends upon the value of leisure time and upon the reciprocal of all arguments raised in the discussion on the utility of being in states S_1 and S_2 . Now each individual, who can potentially supply labor, is faced with the following simple discrete choice problem:

$$\max_{S_j} \{ U(S_1), U(S_2), U(S_3) \} \quad j = 1, 2, 3$$

The solution and empirical implementation of this discrete choice problem gives an impression of how the supply effect translates into a higher demand for social security and less **labor** participation. When the supply effect increases, e.g. because the social security system becomes more generous or through learning effects, the negative spiral of the wedge is set in motion. Higher demand for social security causes a rise in premiums and taxes which widens the wedge between gross **labor** costs and net earnings. This leads to a fall in **labor** participation both through the demand and supply side of the **labor** market, and hence to a further increase in the demand for

social security. Therefore the indirect effect of the supply effect on labor participation is much higher than the direct effect. This illustrates the importance of curbing the negative spiral by institutional changes which reduce the supply effect in size. The description above of the main determinants of the supply effect indicates which policy options for such institutional changes can be successful. For developing countries which are building up a system of social security it is essential that they prevent, through a proper design of institutional arrangements, that labor supply behavior induces a negative spiral.

To our knowledge, no comprehensive, comparative country-studies are available about this issue, but Table 3 provides some indicators relevant in this discussion.

Table 3 — The supply effect of social security: labor participation, social security expenditures and productivity (1993) and wage costs elasticities

	Participati on rate (labor years)	Social security expenditure (as a percentage of GDP)	Taxes and premiums (as a percentage of GDP)	GDP per worker (index, USA = 100)	GDP per hour worked (index, USA = 100)	Wage costs elasticit with respect to soci security contributor	
						Employers contribu- tions	Incom taxes a worke contrib tions
Netherlands	51	27	55	90	106	.	.
France	56	24	47	94	97	0.40	0.40
UK	60	16	46	75	80	0.25	0.25
Germany	62	15	37	82	84	1.0	1.0
USA	65	13	32	100	100	0.0	1.0
Japan	67	12	33	75	63		

Source: OECD (1994 and 1995) and Van Paridon (2000).

Taking the United States as a benchmark Japan has high labor participation, low social security expenses and tax- and premium rates combined with a low productivity level. In The Netherlands and France, and to a lesser extent in the United Kingdom and Germany, labor participation is low and social security expenditure and income and the productivity level are high.

Time lags in the economic impact of social security

A major problem of the social security system is that it turns out to be difficult to adjust to changing social patterns. The impact of a system of social security depends on the circumstances in other parts of the economy and society. A generous system of social security may go together with economic growth, low unemployment and high labor force participation, but if in the long run the macro-economic, social or technological environment changes, the same system could seriously frustrate economic development.

Recently a number of authors stressed that high and persistent unemployment in Europe is caused by a generous system of social security, reducing work and job

search incentives in combination with increased economic turbulence, caused by technological change and increased competition. In the 1950s and 1960s, when most social security programs were developed and structural change and labor market dynamics were more modest, these problems were not foreseen.

Bertola and Ichino (1995) interpret economic turbulence as reflecting more volatile local demand shocks. Given that wages are rigid in the short run and firing costs are high in Europe, a higher probability of negative shocks decreased labor demand, i.e. the causality goes via the demand side of the labor market. In contrast Ljungqvist and Sargent (1998) explain high and persistent unemployment in Europe via the supply side of the labor market. In their model workers lose skills at displacement and while unemployed. This loss is due to structural changes, e.g. the transition from a manufacturing to a service economy, globalization of the economy and adoption of information and communication technologies (ICT). In combination with high replacement rates, which set high reservation wages, this causes long-term unemployment because reservation wages are high relative to the low productivity. In addition the low job finding probability and high replacement rates cause low search intensity which, in turn, causes a high rate of long-term unemployment. The low job finding probability is due to the depreciated level of human capital due to displacement subsequent unemployment. The model by Marimon and Zilibotti (1999), which we discussed before, explains the relation between increased economic turbulence and unemployment through the matching process of jobs and workers. In their model economic turbulence is modeled as a permanent shock that increases the relative value of the right match. In times of economic turbulence generous benefits allow workers to search longer for better matches, which increases the equilibrium unemployment rate. Mismatch is decreased at the expense of an inefficient level of investment in search.

Changing social and demographic patterns also influence the long run impact of social security programs. Individualization and an increased number of divorced couples puts more pressure on non-contribution programs such as family allowance and social assistance. In the United Kingdom policy makers in 1948 considered social assistance a temporary provision, as they expected that eventually everyone would be self-supporting through work or (unemployment) insurance (Barr (1998), p. 242). A social security system where benefit entitlements are highly dependent on labor market status, such as the German system, has difficulties to cope with these changing social patterns outside the labor market. Structural changes in the employment pattern of workers, such as the sharp rise in the share of part-time workers in The Netherlands, also put pressure on the existing social security programs. Part-time workers and workers with intermitted incomes are often excluded from insurance based benefits, mostly unemployment and occupational disability benefits.

Substitution between unemployment insurance and disability schemes

‘A major problem of the rather generous design of the social security system in The Netherlands is that the number of disability beneficiaries has exploded since the 1970s. The number of benefits now surmounts 900,000 which is far beyond expectations when the disability act unanimously passed Parliament in 1967. It is widely recognized that many of these workers are in fact unemployed. Aarts and De Jong (1992) conclude in their study for The Netherlands that up to 50 percent of the

workers receiving a disability benefit, are in fact unemployed. This is an important issue for two reasons. First, because disability benefits are more generous than unemployment benefits, and a high share of disabled workers therefore rises wage costs and increases the government's budget deficit. The second reason is that if employment outflow is skewed towards disability benefits, the unemployment level is lowered artificially. This generates biased and unintended **labor** market signals, which could cause economically unsound wage increases. Yet, for obvious political reasons it appears extremely difficult to curb this "curse of a good act", as it is labelled by former Dutch prime minister Lubbers, and turn the disability benefit provision into a benefit provision of last resort it was intended to be.

This problem is not unique to The Netherlands. In a study of the inflow into the German disability scheme, **Riphahn** (1997) finds that a lower replacement ratio has a negative impact on the inflow rate. Because the effect is quite small and in his study there was no significant effect of aggregate unemployment on disability inflow, **Riphahn** concludes that there is probably no substitution between unemployment and disability. However, **Bowitz** (1997) addresses the same issue for Norway and he finds a significant positive influence of the aggregate unemployment rate on disability inflow. It seems likely that in some of the European countries there is inefficient substitution between unemployment and disability schemes.

A related issue is the risk of interaction between different social security schemes if there are large differences in benefit levels. The levels of certain benefits, notably unemployment and early retirement benefits, are likely to have a positive influence on the inflow rate into disability. A worker who applies for disability benefits will always have to take a medical examination, facing the possibility that he will not be granted a benefit. In that case, he can apply for another benefit. If these benefit levels are relatively high, this reduces the financial risk of applying for disability benefits, which will have a positive impact on the number of workers applying for disability benefits and hence, given the acceptance probability, the disability inflow rate will increase (**Bowitz** (1997)).

5. Conclusions

Our survey of the theoretical literature on institutional aspects of social security schemes and the review of practical experiences in the European countries with these institutions taught us the following lessons for setting up social security systems in newly developing countries.

1. There is no need for developing countries to follow the same historical pattern of development of social security systems as European countries did. **Ahmad** (1991) states that the three stages in the development of European social security systems are misleading if used as a guide to policy. The history of European welfare states, although not discussed extensively in this paper, learns that the development of social security systems is not a linear process and that the direction of the developments, for example towards **insurance**-dominated systems or redistribution-dominated systems, depends on many political, economic and social circumstances. The lesson for newly developing economies is that there is no such thing as a 'natural next step' in the

development of formal social security programs. This applies also for the development of the two social security concepts that can be distinguished in Europe: there is no need for other countries to develop similar systems.

2. Social security systems should be tailor made and be adapted to the specific social structure and properties of the labor market in the country. There exists no uniform blueprint for an optimal system of social security.
3. Social security systems may combine both elements of the insurance concept and of the redistribution concept. To some extent the system will always have to be based on solidarity, especially with respect to the poor who should be provided an income guarantee above subsistence level. On the other hand, the system should contain enough incentives to avoid moral hazard and free rider behavior. It is essential that incentives in the system do encourage, and not discourage, labor participation.
4. The redistribution inherent in social security systems is bound to diminish income inequality to a certain extent. Because of the trade-off between equity and efficiency this may hamper economic growth. On the other hand, social security, due to its irrigation function, can also foster economic growth as it provides unemployed the opportunity to search for good and productive job matches. Hence the design of a social security system should find a good balance between this negative equity-efficiency trade-off and the irrigation function of social security.
5. A major lesson to be drawn from the experience in European countries and especially in The Netherlands is that the initial design of the social security system should not be too generous and too much directed towards to provisions of benefits. In these early days of social security the use of the system was much underestimated. The mere availability of the provisions evoked a supply effect which was strengthened by the negative wedge spiral: the entitlement of an individual for a social security benefit brings about a negative externality for the employed as they have to pay higher social security premiums. Newly developing countries should avoid the mistake of setting up too generous and passive systems: the system should provide a trampoline instead of a hammock.

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References

- Aarts, L.J.M. and Ph. R. de Jong, 1992, *Economic aspects of disability behavior*, Amsterdam: North Holland.
- Addison, J.T. and P.J.J. Welfers (Eds.), 1998, *Labor markets and social security*, Springer.
- Aghion, Ph., E. Caroli and C. García-Peñalosa, 1999, Inequality and economic growth: the perspective of the new growth theories, *Journal of Economic Literature*, 37, 1615-1660.
- Ahmad, E., 1991, Social security and the poor; choices for developing countries, *The World Bank Research Observer*, 6 (1), 105-127.
- Atkinson, A.B., 1999, *The economic consequences of rolling back the welfare state*, Munich Lectures in Economics, Cambridge/London: MIT Press.
- Barr, N., 1992, Economic theory and the welfare state: a survey and interpretation, *Journal of Economic Literature*, 30, 741-803.
- Barr, N., 1998, *The economics of the welfare state*, 3rd edition, Oxford University Press.
- Berg, G.J. van den, 1990, Nonstationarity in job search theory, *Review of Economic Studies*, 57, 255-277.
- Berman, E., J. Bound and S. Machin, 1998, Implications of skill-biased technological change: international evidence, *Quarterly Journal of Economics*, 113 (4), 1245-1279.
- Björklund, A. and B. Holmlund, 1989, Effects of extended unemployment compensation in Sweden, in: Gustafsson and Anders Klevmarken (Eds.) (1989), 165-183.
- Boone, J. and J.C. van Ours, 2000, Modeling financial incentives to get unemployed back to work, *CentER* discussion paper 2000-02.
- Borstlap H., 1996, Labour market, social protection and economic performance, in P.A.G. van Bergeijk et al. (eds.), *Economic Science: Art or Asset? The Case of the Netherlands*, OCFEB, Rotterdam, 85-94.
- Bowitz, E., 1997, Disability benefits, replacement ratios and the labor market; A time series approach, *Applied Economics*, 29, 913-923.
- Butter, F.A.G. den, 1993, Supply of social security as a cause of low labour participation in The Netherlands: a cliometric analysis, Free University Research Memorandum, 1993-56.
- Butter, F.A.G. den, and U. Kock, 2000, More labour participation with individual savings accounts? (in Dutch), *Openbare Uitgaven*, 32, forthcoming.
- Connolly, S. and A. Munro, 1999, *Economics of the public sector*, Prentice Hall Europe.
- Cox Edwards, A. and C. Manning, 1999, The economics of employment protection, and unemployment insurance schemes: Reflections on policy options for Thailand, Malaysia, the Philippines and Indonesia, paper prepared for the World Bank et al.

- seminar on 'Economic crisis, employment and labor market. in East and South-East Asia', Tokyo: 13 – 15 October 1999.
- International Labor Office, 1992, *The cost of social security: thirteenth international inquiry, 1984-1986 and earlier years*, Geneva.
- Kalb, G.R.J., P.J.M. Kooij and C. Koopmans, 1991, 'Comfortable unemployed: An analysis of the influence of benefit conditions on unemployment duration' (in Dutch), Amsterdam: GAK.
- Kami, E., 1999, Optimal unemployment insurance: a guide to the literature, World Bank mimeo, January 1999.
- Klaauw, B. van der, 2000, *Unemployment duration determinants and policy evaluation*, Ph.D. thesis Free University Amsterdam.
- Landesmann M.A. and K. Pichelmann (Eds.), 2000, *Unemployment in Europe*, McMillan.
- Layard, R., S. Nickell and R. Jackman, 1991, *Unemployment: Macro-economic performance and the labor market*, Oxford University Press.
- Ljungqvist, L. and T. J. Sargent, 1998, The European unemployment dilemma, *Journal of Political Economy*, 106 (3), 514-550.
- Lubbers, R.F.M., 1990, De economische politiek in Nederland vanaf de jaren '60 (Economic policy in The Netherlands from the 1960's), in J. van Sinderen (ed.) *Het sociaal-economisch beleid in de tweede helft van de twintigste eeuw*, Wolters-Noordhoff, Groningen, 14-19.
- Machin, S. and J. Van Reenen, 1998, Technology and changes in skill structure: evidence from seven OECD countries, *Quarterly Journal of Economics*, 113 (4), 1215-1244.
- Marimon, R. and F. Zilibotti, 1999, Unemployment versus mismatch of talent: reconsidering unemployment benefits, *The Economic Journal*, 109, 266-291.
- Mortensen, D.T. and C.A. Pissarides, 1999, Unemployment responses to skill biased technology shocks: the role of labour market policy, *The Economic Journal*, 109, 242-265.
- Muffels, R., 1993, *Welfare economic effects of social security; essays on poverty, social security and labor market: evidence from panel data*, Ph.D. thesis Tilburg University.
- Organization for Economic Cooperation and Development (OECD), 1994, *The OECD Job Study*, Paris.
- Organization for Economic Cooperation and Development (OECD), 1995, *Labor Force Statistics*, Paris.
- Paridon, K. van, 2000, The crucial importance of high labor force participation: the Dutch case and lessons for Europe, in: Landesmann and Pichelmann (Eds.), 188-204.
- Persson, T. and G. Tabellini, 1994, Is inequality harmful for growth?, *American Economic Review*, 84, 600-621.

- Riphahn, R.T., 1997, Disability retirement and unemployment - substitute pathways for labor force exit? An empirical test for the case of Germany, *Applied Economics*, **29**, 551-561.
- Schmid and Reissert, 1996a, *International handbook of labor market policy and evaluation*, Edward Elgar.
- Schmid and Reissert, 1996b, Unemployment compensation and labor market transitions', in: Schmid and Reissert (1996a), 235-276.
- Scientific Council of Government Policy (WRR), 2000, *Prolongation of Labour Participation Growth* (in Dutch), Reports to the Government nr. 57, SDU Publishers, The Hague.
- World Bank, 2000, *World Development Report 2000/2001; Attacking Poverty*, Oxford University Press.